

Kramer Electronics, Ltd.



USER MANUAL

Model:

TP-205A

XGA / Audio / RS-232 Line Transmitter / DA

Contents

1	Introduction	1
2	Getting Started	1
2.1	Quick Start	1
3	Overview	3
3.1	Your TP-205A	3
3.2	About the Power Connect Feature	3
3.3	Shielded Twisted Pair (STP) / Unshielded Twisted Pair (UTP)	4
3.4	Recommendations for Achieving the Best Performance	4
4	Your TP-205A	5
4.1.1	The TP-205A Underside	6
5	Configuring the TP-205A	7
5.1	Connecting the TP-205A	7
5.2	Looping the TP-205A	9
5.3	Wiring the CAT 5 LINE IN / LINE OUT RJ-45 Connectors	10
5.4	Controlling via RS-232 (for example, using a PC)	10
6	Technical Specifications	11

Figures

Figure 1: TP-205A	5
Figure 2: TP-205A Underside	6
Figure 3: Connecting the XGA / Audio / Data Line Transmitter / Receiver System	8
Figure 4: Looping the TP-205A	9
Figure 5: CAT 5 PINOUT	10
Figure 6: RS-232 PINOUT Connection	10

Tables

Table 1: TP-205A Features	5
Table 2: Features of the TP-205A Underside	6
Table 3: CAT 5 PINOUT	10
Table 4: RS-232 PINOUT Connection	10
Table 5: Technical Specifications of the TP-205A	11

1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 1,000-plus different models now appear in 11 groups¹ that are clearly defined by function.

Congratulations on purchasing your Kramer **TP-205A XGA / Audio / RS-232 Line Transmitter / DA**, which is ideal for:

- Presentation and multimedia applications
- Long range graphics distribution for schools, hospitals, security, and stores

The package includes the following items:

- **TP-205A XGA / Audio / RS-232 Line Transmitter / DA**
- Power adapter (12V DC Input) and this user manual²

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high performance high resolution cables³

2.1 Quick Start

The quick start charts summarize the basic setup and operation steps of the **TP-205A**.

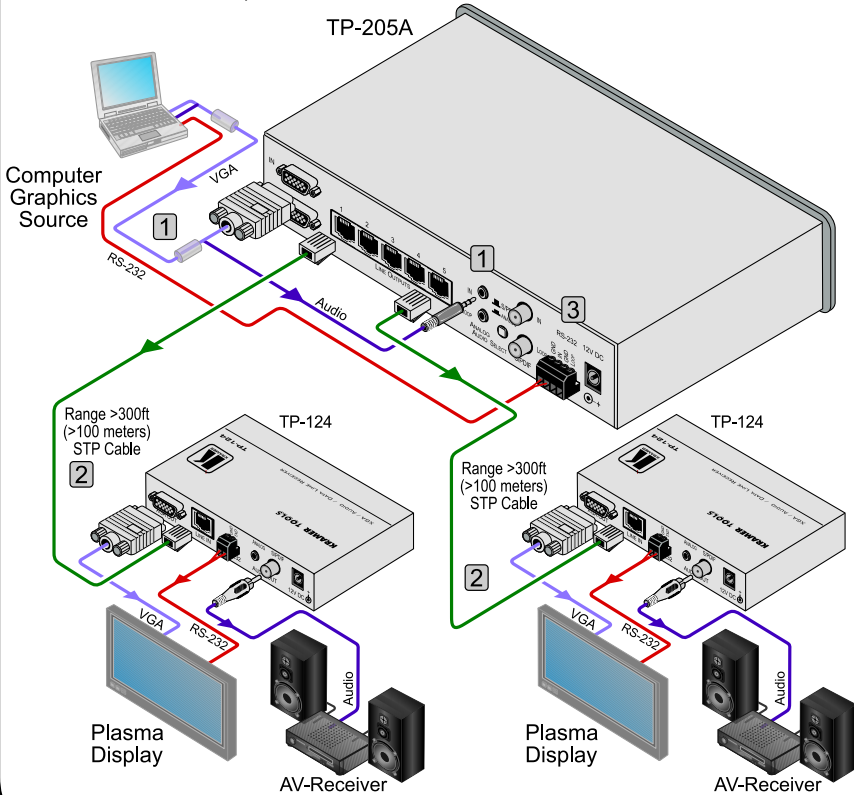
1 GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

2 Download up-to-date Kramer user manuals from the Internet at this URL: <http://www.kramerelectronics.com>

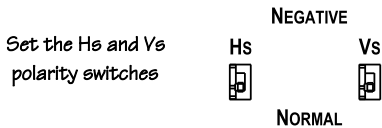
3 The complete list of Kramer cables is on our Web site at <http://www.kramerelectronics.com>

Step 1: Connect the input and the outputs - see section 5

- 1 Connect the video and audio inputs
- 2 Connect to the receivers via CAT 5 cables
- 3 Connect to an RS-232 port



Step 2: Set the underside switches - see section 5



Step 3: Connect the power

3 Overview

This section describes:

- The **TP-205A** *XGA / Audio / RS-232 Line Transmitter / DA*, see section 3.1
- The power connect feature, see section 3.2
- Using shielded twisted pair (STP) / unshielded twisted pair (UTP), see section 3.3
- Recommendations for achieving the best performance, see section 3.4

3.1 Your TP-205A

The **TP-205A** is a high performance transmitter. It accepts a computer graphics input signal, a selectable unbalanced stereo analog audio signal or a digital audio (S/PDIF) signal, and unidirectional (TxD) RS-232 control commands (that can be embedded when the S/PDIF ANALOG Selector Button is set to the analog state). It transmits to up to five receivers (via CAT 5 cables).

In addition, the **TP-205A**:

- Has a resolution of up to UXGA
- Can be looped to an additional **TP-205A** transmitter
- Has a transmission range of more than 300ft. (more than 100 meters) over UTP cabling.
- Can power the receivers over the same CAT 5 cable, and is 12V DC fed

3.2 About the Power Connect Feature

The Power Connect feature of the **TP-205A** lets you power the transmitter / receiver(s) system by connecting just the **TP-205A** power adapter. The other units are fed via the cables connecting between the transmitter/receivers. The Power Connect feature applies as long as the cable can carry power. The distance does not exceed 50 meters on standard CAT 5 cable, for longer distances, heavy gauge cable should be used¹.

For a CAT 5 cable exceeding a distance of 50 meters, separate power supplies should be connected to the transmitter and to the receivers simultaneously.

¹ CAT 5 cable is still suitable for the video/audio transmission, but not for feeding the power at these distances

3.3 Shielded Twisted Pair (STP) / Unshielded Twisted Pair (UTP)

We recommend that you use shielded twisted pair (STP) cable. There are different levels of STP cable available, and we advise you to use the best quality STP cable that you can afford. Our UTP skew-free cable, Kramer **BC-XTP**, is intended for transmitting VGA signals and recommended for this pair of machines. (Our non-skew-free cable, Kramer **BC-STP**, is intended for digital signals.)

The compliance to electromagnetic interference was tested using STP cables, therefore we recommend using those cables.

Although unshielded twisted pair (UTP) cable might be preferred for long range applications, the UTP cable should be installed far away from electric cables, motors and so on, which are prone to create electrical interference. However, since the use of UTP cable might cause inconformity to electromagnetic standards, Kramer does not commit to meeting the standard with UTP cable.

3.4 Recommendations for Achieving the Best Performance

To achieve the best performance:

- Connect only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise- levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances and position your Kramer **TP-205A** away from moisture, excessive sunlight and dust



Caution – No operator-serviceable parts inside unit.

Warning – Use only the Kramer Electronics input power wall adapter that is provided with this unit¹.

Warning – Disconnect power and unplug unit from wall before installing or removing device or servicing unit.

¹ For example: model number AD2512C, part number 2535-000251

4 Your TP-205A

Figure 1 and Table 1 define the **TP-205A**:

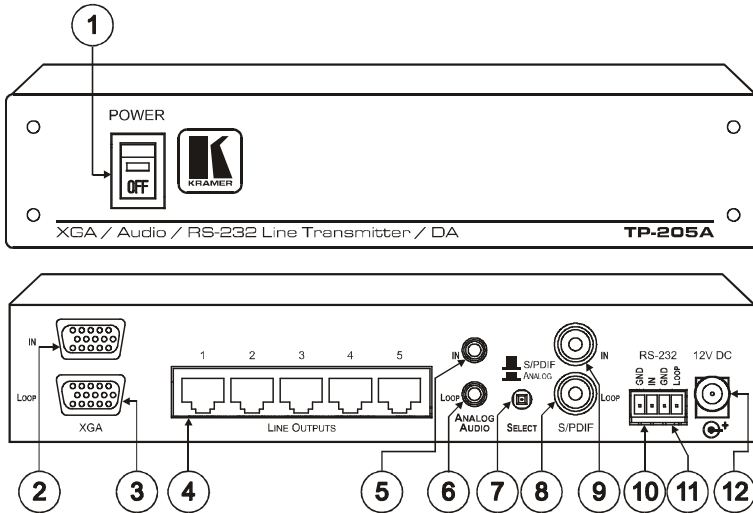


Figure 1: TP-205A

Table 1: TP-205A Features

#	Feature	Function
1	POWER Switch	Illuminated switch for turning the unit ON or OFF
2	XGA 15-pin HD Connector	IN Connect to the computer graphics source
3		LOOP Connect to a display or to the XGA IN connector of an additional TP-205A unit
4	LINE OUTPUTS RJ-45 Connectors	Connect to ¹ the LINE IN RJ-45 connector on a receiver ² (from 1 to 5)
5	ANALOG AUDIO 3.5mm Mini Jack	IN Connects to the unbalanced stereo analog audio source
6		LOOP Connect to an unbalanced stereo analog audio acceptor or to the ANALOG AUDIO IN connector of an additional TP-205A unit
7	S/PDIF – ANALOG SELECT Selector Button ³	Release to select digital audio (S/PDIF) Press to select analog audio
8	S/PDIF RCA Connector	LOOP Connect to a digital audio acceptor or to the S/PDIF IN connector of an additional TP-205A unit
9		IN Connect to the digital audio source
10	RS-232 Terminal Block Connector	IN Connect the two connectors on the left (GND and IN) to a PC or remote controller (see section 5.4)
11		LOOP Connect the two connectors on the right (GND and LOOP) to the GND and IN connectors of an additional TP-205A
12	12V DC	+12V DC connector for powering the unit

1 Using a UTP CAT 5 cable with RJ-45 connectors at both ends (the PINOUT is defined in Table 3 and Figure 5)

2 For example, the Kramer TP-124, the Kramer TP-46, and so on

3 RS-232 can be embedded only when the S/PDIF ANALOG Selector Button is set to the analog state

4.1.1 The TP-205A Underside

Figure 2 and Table 2 define the underside of the **TP-205A**

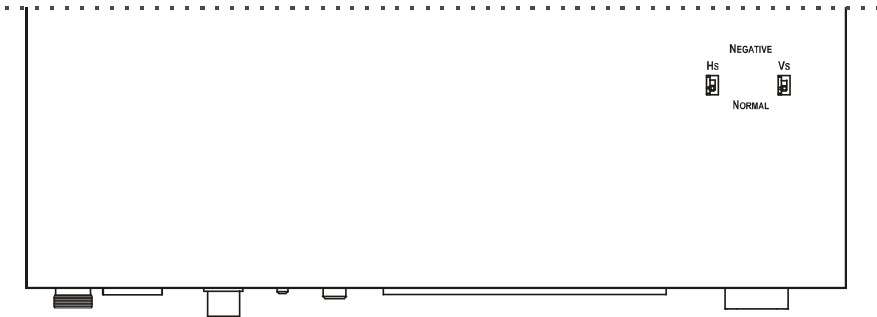


Figure 2: TP-205A Underside

Table 2: Features of the TP-205A Underside

Feature	Function
HS Switch ¹	Slide the switch up, to set the H SYNC to negative polarity (NEGATIVE) Slide the switch down, to set the H SYNC to its input polarity (NORMAL)
VS Switch ¹	Slide the switch up, to set the V SYNC to negative polarity (NEGATIVE) Slide the switch down, to set the V SYNC to its input polarity (NORMAL)

¹ By default, both switches are set down (for normal V SYNC and H SYNC polarity)

5 Configuring the TP-205A

This section describes how to:

- Connect the **TP-205A** (see section 5.1)
- Connect an additional **TP-205A** (see section 5.2)
- Wire the CAT 5 LINE IN / LINE OUT RJ-45 Connectors (see section 5.3)
- Control via RS-232 (see section 5.4)

5.1 Connecting the TP-205A

You can connect the **TP-205A** to up to five receivers. Use it to transmit the video, audio and RS-232 control signals via CAT 5 UTP cable.

To connect the **TP-205A** as illustrated in the example in Figure 3, do the following:

1. Connect an XGA source (for example, a laptop's graphics card) to the XGA IN 15-PIN HD connector and an audio source to the ANALOG AUDIO IN 3.5mm mini jack¹, for example, using a Kramer C-GMA/GMA cable (VGA HD15M +Audio jack to VGA HD15M +Audio jack)².
2. Press the SELECT button to select the ANALOG input³.
3. Connect an RS-232 cable with a 9-pin D-sub connector at one end to the laptop, and the other end to the 2 left-hand pins of the terminal block connector⁴ (GND and IN) on the **TP-205A** RS-232 port⁵.
4. Connect the LINE OUTPUT CAT 5 connectors as follows⁶:
 - The LINE OUT 1 RJ-45 connector on the **TP-205A** to the LINE IN RJ-45 connector on the **TP-124**⁷ via UTP cabling⁸ (with a range of more than 300ft (>100m))⁹
 - The LINE OUT 5 RJ-45 connector on the **TP-205A** to the LINE IN RJ-45 connector on the **TP-124**⁷, via UTP cabling⁸ (with a range of more than 300ft (>100m))

¹ Or alternatively to the digital audio S/PDIF IN RCA connector

² Not supplied. The full list of Kramer cables is on our Web site at <http://www.kramerelectronics.com>. Alternatively, you can connect an XGA source to the XGA IN 15-pin HD connector, and a separate audio source to the AUDIO IN 3.5mm mini jack

³ If the digital audio input is selected, release the SELECT button

⁴ The two right pins (GND and LOOP) can be connected to the GND and IN connectors on an additional TP-205A unit

⁵ As defined in Figure 6 and Table 4 (see section 5.4)

⁶ You do not have to connect all the outputs

⁷ Refer to the separate user manual, which can be downloaded from the Internet at <http://www.kramerelectronics.com>

⁸ For details of how to wire a CAT 5 LINE IN / LINE OUT RJ-45 connector, see section 5.3

⁹ The TP-46 is connected to an additional TP-46 unit for transmitting the signal further

5. Connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity.
6. If necessary, set the H SYNC and V SYNC switches¹ on the underside.

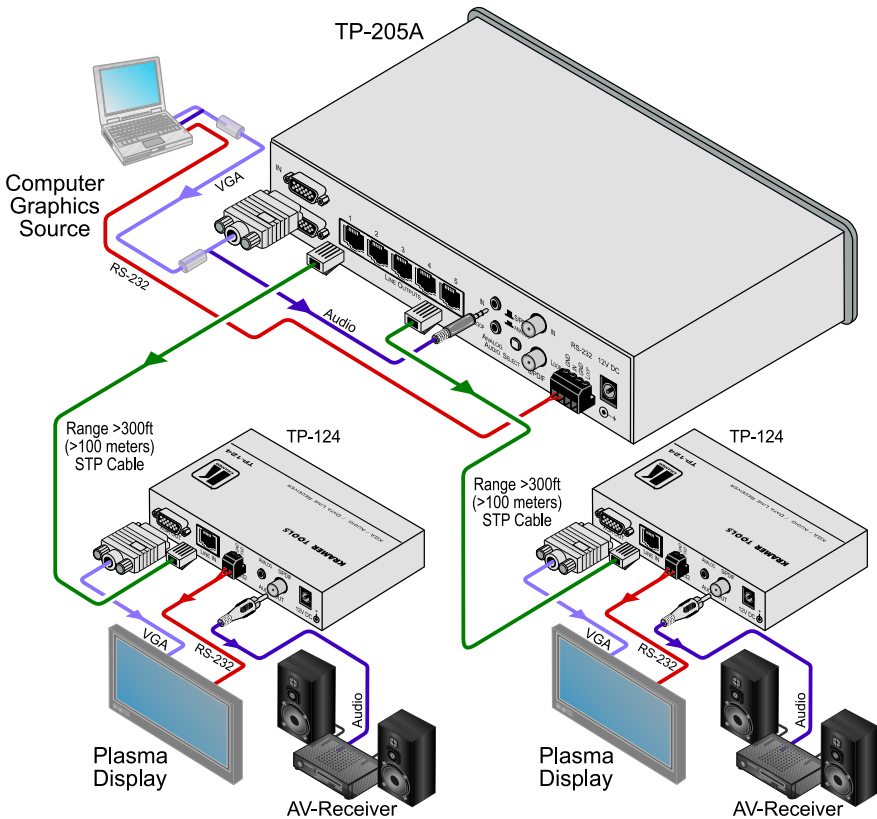


Figure 3: Connecting the XGA / Audio / Data Line Transmitter / Receiver System

¹ By default, both switches are set down (for normal V SYNC and H SYNC polarity)

5.2 Looping the TP-205A

You can loop two¹ **TP-205A** units to add further output signals to the system, as illustrated in the example in Figure 4. In this example:

1. Connect the XGA LOOP 15-PIN HD connector of the first **TP-205A** to the XGA IN 15-PIN HD connector of the second **TP-205A**.
2. Connect the S/PDIF LOOP RCA connector of the first **TP-205A** to the S/PDIF LOOP RCA connector of the second **TP-205A**.
3. Connect the GND and LOOP right terminal block connectors of the first **TP-205A** to the GND and IN left terminal block connectors of the second **TP-205A**.
4. Connect the LINE OUTPUT RJ-45 connectors on each **TP-205A** unit, to the LINE IN RJ-45 connectors of various receivers, as illustrated in Figure 4.
5. On each **TP-205A** unit, connect the 12V DC power adapter to the power socket and connect the adapter to the mains electricity.

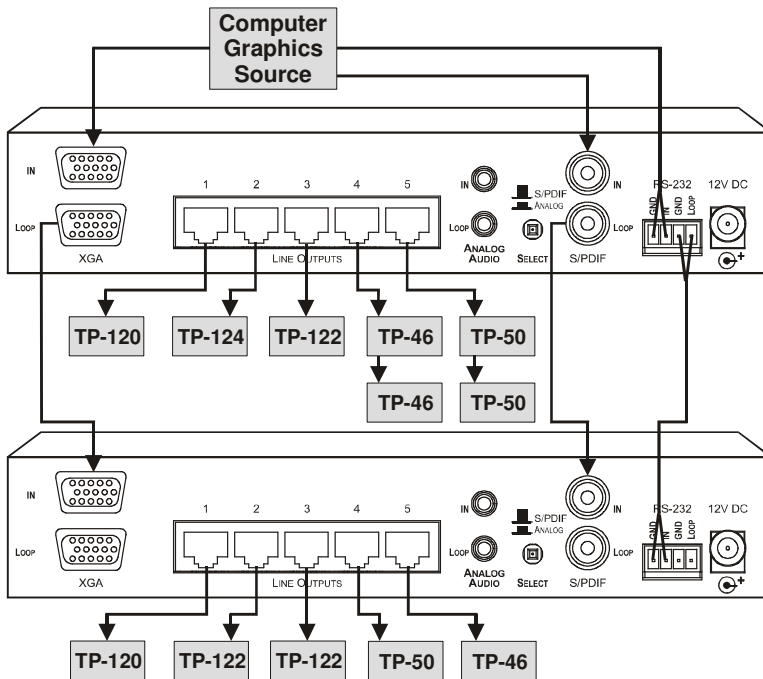


Figure 4: Looping the TP-205A

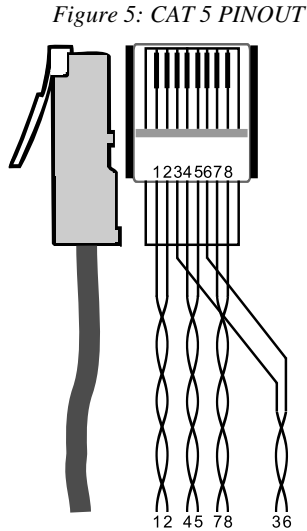
¹ The number of TP-205A units that can be looped depends upon the quality of the input signal that you require and the distance between the machines. We do not recommend cascading more than five TP-205A units

5.3 Wiring the CAT 5 LINE IN / LINE OUT RJ-45 Connectors

Table 3 and Figure 5 define the UTP CAT 5 PINOUT, using a straight pin to pin cable with RJ-45 connectors:

Table 3: CAT 5 PINOUT

EIA / TIA 568A		EIA / TIA 568B	
PIN	Wire Color	PIN	Wire Color
1	Green / White	1	Orange / White
2	Green	2	Orange
3	Orange / White	3	Green / White
4	Blue	4	Blue
5	Blue / White	5	Blue / White
6	Orange	6	Green
7	Brown / White	7	Brown / White
8	Brown	8	Brown
Pair 1		4 and 5	
Pair 2		3 and 6	
Pair 3		1 and 2	
Pair 4		7 and 8	



5.4 Controlling via RS-232 (for example, using a PC)

Prepare an RS-232 cable with a 9-pin D-sub connector at one end, and a 2 PIN terminal block connector at the other end, as defined in Figure 6 and Table 4:

Table 4: RS-232 PINOUT Connection

Attach the 9-pin D-sub Connector	To the Terminal Block Connector PIN:
PIN 3	IN
PIN 5	GND (on the left)

PC (Controller) to TP-205A

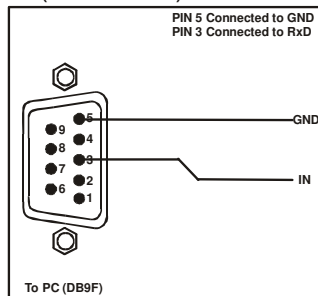


Figure 6: RS-232 PINOUT Connection

6 Technical Specifications¹

Table 5 includes the technical specifications of the **TP-205A**:

Table 5: Technical Specifications of the TP-205A

INPUTS:	VIDEO: 1 VGA / UXGA on an 15-pin HD connector AUDIO: 1 audio ANALOG 3.5mm mini jack, 1 audio S/PDIF RCA connector	
OUTPUTS:	1 RJ-45 OUT connector	
MAX. OUTPUT LEVEL:	VIDEO: 1V	AUDIO: 2.3V
RESOLUTION:	Up to UXGA	
BANDWIDTH (-3dB) ² :	AUDIO: 20Hz – 20kHz @0.5dB	
S/N RATIO:	AUDIO: >80dB	
TOTAL GAIN:	AUDIO: Analog/analog: 0dB Analog/SPDIF: –12dBFS	
TND+N:	AUDIO: <0.01%	
POWER SOURCE:	12V DC 2A	
DIMENSIONS:	21.46cm x 16.25cm x 4.36cm (8.45" x 6.4" x 1.72"), W, D, H	
WEIGHT:	1.2kg (2.65lbs) approx.	
ACCESSORIES:	Power supply	
OPTIONS:	19" rack adapters	

¹ Specifications are subject to change without notice

² For the Transmitter/Receiver pair

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.
3. Damage, deterioration or malfunction resulting from:
 - i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
 - ii) Product modification, or failure to follow instructions supplied with the product
 - iii) Repair or attempted repair by anyone not authorized by Kramer
 - iv) Any shipment of the product (claims must be presented to the carrier)
 - v) Removal or installation of the product
 - vi) Any other cause, which does not relate to a product defect
 - vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on your product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

- | | |
|-----------|---|
| EN-50081: | "Electromagnetic compatibility (EMC);
generic emission standard.
Part 1: Residential, commercial and light industry" |
| EN-50082: | "Electromagnetic compatibility (EMC) generic immunity standard.
Part 1: Residential, commercial and light industry environment". |
| CFR-47: | FCC* Rules and Regulations:
Part 15: "Radio frequency devices
Subpart B Unintentional radiators" |

CAUTION!

- ☒ Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- ☒ Use the supplied DC power supply to feed power to the machine.
- ☒ Please use recommended interconnection cables to connect the machine to other components.
* FCC and CE approved using STP cable (for twisted pair products)



For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found. We welcome your questions, comments and feedback.



Caution

Safety Warning:

Disconnect the unit from the power supply before opening/servicing.



Kramer Electronics, Ltd.

Web site: www.kramerelectronics.com

E-mail: info@kramerel.com

P/N: 2900-000331 REV 4